
MONTEREY BAY NATIONAL MARINE SANCTUARY



DRAFT MANAGEMENT PLAN

PREPARED AS PART OF THE
JOINT MANAGEMENT PLAN REVIEW (JMPR)

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Monterey Bay National Marine Sanctuary

Draft Management Plan

October 2006

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Executive Summary

Background

The Monterey Bay National Marine Sanctuary (MBNMS) is the largest of thirteen marine sanctuaries administered by the United States Department of Commerce National Oceanic and Atmospheric Administration (NOAA). The MBNMS extends from Marin County to Cambria, encompassing nearly 300 miles of shoreline and 5,322 square miles of ocean extending an average distance of twenty-five miles from shore. At its deepest point the MBNMS reaches down 10,663 feet (more than two miles). By surface area, the MBNMS represents about thirty percent of the area protected by the National Marine Sanctuary System; however by volume, because of its depth, it protects two-thirds of all the marine and coastal waters in the national system. It is home to numerous mammals, seabirds, fishes, invertebrates, and algae in a remarkably productive coastal environment. Within its boundary is a rich array of habitats, from rugged rocky shores and lush kelp forests to one of the largest underwater canyons in North

America. These habitats abound with life, from tiny microscopic plants to enormous blue whales. There is a human dimension to the MBNMS with several urban centers and approximately 3 million people living within 50 miles of its shoreline, many who rely on MBNMS resources for pleasure or work. With its great diversity of habitats and life, and due to the human communities along its shoreline, the MBNMS is a national focus for recreation, research, and education.

Joint Management Plan Review

This management plan for the MBNMS was developed as part of a process known as the Joint Management Plan Review (JMPR). The National Marine Sanctuary Program (NMSP) reviewed the management plans of the MBNMS together with the Cordell Bank and Gulf of the Farallones

Figure EX. 1 Central California National Marine Sanctuaries and Coastal Counties



National Marine Sanctuaries in the JMPR for several reasons. These Sanctuaries are located adjacent to one another, managed by the same program, and share many of the same resources and issues. In addition, all three sites share many overlapping interest and user groups. Using a community-based process providing numerous opportunities for public input, the NMSP examined the current issues and threats to the resources and whether the management plan put in place at that time is adequately protecting MBNMS resources.

The Management Plan

This management plan is a revision of the original management plan, adopted with Sanctuary designation in 1992, and is focused on how best to understand and protect the Sanctuary's resources. This management plan includes twenty-five action plans guiding the Sanctuary for the next five years. The majority of the action plans are grouped into four main marine management themes: coastal development, ecosystem protection, water quality, and wildlife disturbance. Two additional sections, partnerships and opportunities as well as operations and administration, comprise action plans and strategies addressing how the Sanctuary will function and operate. Finally, five cross-cutting plans will be implemented in conjunction with the other two sanctuaries. Successful implementation of each of the action plans relies on partnerships with federal, state, and local agencies in addition to local stakeholders. Much of the work to be accomplished crosses many jurisdictions and exceeds the resources of any one agency. Following is a summary of the action plans, which make up the priority initiatives of the MBNMS in this new management plan.

Coastal Development Action Plans

Coastal Armoring: The armoring of the coastline for protection of private and public structures continues to expand throughout the Sanctuary. This action plan proposes to address coastal armoring issues through development of a program to coordinate with the California Coastal Commission and other agencies to identify planning regions and guidelines and where possible, alternatives to armoring.

Desalination: Increased demand for water in various communities adjacent to the Sanctuary, together with advancements in technology, has made desalination an attractive source of fresh water. The Sanctuary proposes development of a regional program and policy regarding desalination facility locations. The action plan also includes development of facility siting guidelines and a modeling and monitoring program for desalination discharges.

Harbors and Dredge Disposal: The Sanctuary will continue to review the disposal of dredged material in approved locations at sea or along the shoreline. This action plan proposes several agency coordination improvements, and the development of review guidelines. It would also implement a sediment monitoring and reduction program, address fine grain material disposal at sea, and evaluate alternative disposal methods for the four harbors in the Sanctuary.

Submerged Cables: The installation, operation, and removal of submerged cable may disturb sensitive habitats and negatively impact areas of the seafloor. Implementation would provide administrative guidelines for applications and define sensitive Sanctuary habitats that should be avoided. This would include a program to provide siting guidelines in a Geographic Information System (GIS) to identify environmental constraints.

Ecosystem Protection Action Plans

Big Sur Coastal Ecosystem Plan: The Sanctuary is proposing development of a program to coordinate and integrate management plans from seven coastal agencies with jurisdiction in the Big Sur area. Full implementation would integrate management plans into one comprehensive regional plan and identify potential methods and locations of disposal associated with landslides and maintenance of Highway 1 in Big Sur.

Bottom Trawling Effects on Benthic Habitats: The effects of bottom trawling on benthic habitats in areas of the Sanctuary are not completely known. Implementation of this action plan would include development of a program to examine where trawling occurs and its impacts to sanctuary resources, and if necessary, to present potential protective measures to the National Marine Fisheries Service, the Pacific Fishery Management Council, and the California Department of Fish and Game.

Davidson Seamount: The Davidson Seamount is a pristine undersea volcano that is proposed for inclusion in the Sanctuary as part of the Jmpr. Inclusion of the Davidson Seamount would provide additional protection of the seamount, additional regulations, and a new management zone. Implementation of the action plan would initiate monitoring, research, and education activities focused on the Davidson Seamount increasing the public's knowledge of seamounts, and the variety of deep sea flora and fauna inhabiting the area.

Emerging Issues: This action plan provides a framework for staff to evaluate and adequately address emerging resource issues in a timely and responsible manner. The strategies outline a process to provide adequate staffing and operations.

Introduced Species: The introduction of non-native species can destroy natural biological communities and potentially harm commercial activities. The Sanctuary would develop a program to prevent introduction, collect baseline information, and develop a research and monitoring program. The action plan also includes development of a detection and response program for potential introductions or releases of non-native species.

Sanctuary Integrated Monitoring Network (SIMoN): Comprehensive, long-term monitoring is a fundamental element of resource management and conservation. The MBNMS, in collaboration with the regional science and management community, designed SIMoN to identify and track natural and human induced changes to the MBNMS. This action plan outlines how SIMoN integrates and interprets results of individual efforts in a large ecosystem-wide context and continuously updates and disseminates data summaries to facilitate communication between researchers, managers, educators, and the public. Timely and pertinent information is provided to all parties through tools such as a SIMoN web site, an annual symposium, and a series of technical and public reports.

Marine Protected Areas (MPAs): The action plan outlines how the Sanctuary will examine the utility of additional marine protected areas (MPAs) in maintaining the integrity of biological communities. It also outlines a program for identifying various types of ocean uses, integrated management, MPA design criteria, socioeconomic impact analysis, MPA enforcement, outreach, and monitoring. This plan also provides a framework to identify how the Sanctuary will

coordinate with the National Marine Fisheries Service, Pacific Fishery Management Council, and California Department of Fish and Game.

Operations and Administration Action Plans

Operations and Administration: This action plan provides the administrative guidelines for programs such as operational planning, staffing and infrastructure needs, volunteer programs, administrative initiatives, interagency coordination, and reviewing requests to conduct prohibited activities that may injure Sanctuary resources. Other activities consist of streamlining the permit review process, including improved outreach and interagency coordination; improved permit compliance; and monitoring and enforcement of permit conditions. Part of this action plan also addresses operation of the Sanctuary Advisory Council and the standing working groups (Conservation Working Group, Sanctuary Education Panel, Business and Tourism Advisory Panel, and Research Activities Panel).

Performance Evaluation: MBNMS will effectively and efficiently incorporate performance measurement into the regular cycle of management. This action plan details how strategy and related activities are to be measured for effectiveness during implementation by staff. This action plan also details the process by which the Sanctuary will measure its management performance over time and report its progress in meeting goals and objectives.

Partnerships and Opportunities Action Plans

Fishing-Related Education and Research: The Sanctuary will work with the fishing community to develop education programs; enhance stakeholder communication; promote understanding of sustainable fisheries; increase involvement in education and research; promote fishery, socioeconomic, cultural, and historical data collection and distribution; and help educate the public on the role of healthy ecosystems and fish stocks.

Interpretive Facilities: This action plan describes the need for and location of interpretive facilities including visitor centers, kiosks, virtual experiences, and signage at various locations along the coastline. Implementation would include development of a Sanctuary Exploration Center in Santa Cruz and provide for a key education and outreach tool component for all of the priority action plans.

Ocean Literacy and Constituent Building: This action plan addresses the need to cultivate an informed, involved constituency who cares about restoring, protecting and conserving our precious ocean resources. The Sanctuary will implement an integrated outreach program to pull together specific outreach and education activities outlined in other sections of this management plan and coordinate their execution, further developing the Sanctuary's relationships with its constituencies.

Water Quality Action Plans

Beach Closures and Microbial Contamination: In the last ten years, beach closures and warnings due to microbial contamination have become more common. This action plan provides a program to identify sources of contamination; research pathogen sources; increase monitoring, education, and enforcement; expand notification and emergency response; and develop a

database and a source control program to reduce beach closures and postings due to microbial contamination.

Cruise Ship Discharges: Cruise ships can carry upwards of 3,000 people, and the discharge of waste may harm the water quality and resources. The Sanctuary proposes to prohibit discharges from cruise ships and conduct outreach and coordination with the cruise ship industry, providing it with information about the MBNMS. The MBNMS would also monitor and enforce potential cruise ship discharges.

Water Quality Protection Program Implementation: Pollutants running off the land often lower the quality of the water as both a habitat and resource for recreational and commercial use. The Sanctuary has four existing action plans that are in place to prevent pollution and facilitate water quality improvements as part of the Water Quality Protection Program: Urban Runoff, Regional Monitoring, Marinas and Boating, and Agriculture and Rural Lands. This action plan integrates the four existing plans into the Sanctuary management plan and provides for full implementation to address pollutants and their sources.

Wildlife Disturbance Action Plans

Marine Mammal, Seabird, and Turtle Disturbance: Various activities occurring on the water, in the air, or on land have the potential to harm the sensitive wildlife inhabiting the Sanctuary. Through increased monitoring, education, outreach, and enforcement, the Sanctuary will address disturbance to marine mammals, birds, and turtles from vessels, aircraft, shore-based activities, marine debris, commercial harvest, and acoustic disturbance.

Motorized Personal Watercraft (MPWC): MPWC use has increased in the Sanctuary with the development of larger and more powerful vehicles for use in the marine environment. The MBNMS is proposing an updated definition of MPWC in order to address the original intent of the existing MBNMS regulation, which was to restrict them to four zones outside of the surf area. This action plan includes education and enforcement procedures and exploration of the need for certain exceptions.

Tidepool Protection: The MBNMS will evaluate and prioritize high-visitation tidepool areas and address possible impacts associated with potentially excessive use. The action plan includes education and enforcement programs, and implementation would include the development of guidelines for tidepool access and enjoyment.

Cross-Cutting (Multi-Sanctuary) Action Plans

The management plans also include several cross-cutting plans, which would be implemented through coordination among each of the three sanctuaries. The following action plans will be included as appendices to the management plans:

Administrative and Operations: This action plan will outline coordination and cooperation across all three sites and identify methods to work and function as an integrated team.

Community Outreach: This action plan will build awareness about the existence and purpose of the three Sanctuaries and why they are relevant to their communities. Implementation will

identify how Sanctuaries work with constituents and how groups can become engaged in helping the Sanctuaries accomplish their goals.

Ecosystem Monitoring: This action plan provides a framework to coordinate the various monitoring activities and to conduct a monitoring needs assessment. The MBNMS will also coordinate with the other sites in expanding the SIMoN to integrate the numerous ecosystem monitoring operations throughout the Sanctuary.

Maritime Heritage: Implementation of this action plan will establish a maritime heritage program at each of the three sites, outline how the West Coast marine heritage program will conduct a submerged-site inventory and assessment, identify and address submerged hazards, and provide for extensive education and outreach.

Northern Management Area (NMA): This action plan outlines how this area will be managed given the recent transfer of management and administrative functions from the MBNMS to the Gulf of the Farallones National Marine Sanctuary (GFNMS) in the NMA, an area of the MBNMS extending from the Santa Cruz-San Mateo county line north to the adjacent GFNMS boundary.

Budget Development

MBNMS management staff developed the budgets in each action plan by evaluating the resources necessary to completely implement each action plan. MBNMS staff estimated the number of hours of personnel staff required to address each activity, the number of field operation (boat, air, dive) days required, as well as materials, supplies, and travel time. Some activities were assumed to be contracted out to other parties and in these cases, the total cost of the contract was included in the budget estimate. Some assumptions were also necessary to arrive at a cost for each strategy. Staffing was estimated at \$80,000 / yr for a full time employee. Each day at sea or in the air was estimated to cost \$2,000 and diving days were estimated to cost \$400 per day in addition to the personnel time. Outreach materials, supplies, travel, and outside contracts were estimated at their dollar value. A summary of the cost for each action plan is included in Table EX-1.

The budgets were also developed with the assumption that all work would begin in the first year. Naturally, given resource limitations as well as the necessary program and partner development to fully implement all of the action plans, it is unlikely the MBNMS will operate at the necessary capacity for some time. After an assessment of the likely resource needs for full implementation, the MBNMS and Sanctuary Advisory Council could then prioritize the implementation of the action plans.

Table EX-1: Estimated Annual Costs for Action Plans

Action Plan	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Coastal Development Action Plans					
Coastal Armoring	\$227	\$173.5	\$194.5	\$120.5	\$119.9
Desalination	\$99.5	\$404.9	\$74.3	\$198.4	\$17

Action Plan	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Harbors and Dredge Disposal	\$71.8	\$156.9	\$53.1	\$49.1	\$45.1
Submerged Cables	\$83	\$128	\$112	\$8	\$8
Ecosystem Protection Action Plans					
Big Sur Coastal Ecosystem Coordination	\$391	\$307	\$291	\$283	\$259
Bottom Trawling Effects on Benthic Habitats	\$317	\$484	\$513	\$165	\$65
Davidson Seamount	\$375	\$138	\$104	\$98	\$108
Emerging Issues	\$45	\$27	\$22	\$27	\$27
Introduced Species	\$133.5	\$332	\$303	\$345	\$336
Sanctuary Integrated Monitoring Network (SIMoN)	\$320	\$300	\$280	\$280	\$280
Special Marine Protected Areas	\$407	\$683	\$270	\$890	\$0
Operations and Administration Action Plans					
Operations and Administration	\$1,526.5	\$1,624.5	\$1,757.5	\$1,793.5	\$1,798.5
Performance Evaluation	\$4	\$4	\$4	\$4	\$4
Partnerships and Opportunities Action Plans					
Fishing Related Education and Research	\$223	\$249.5	\$433.5	\$250.5	\$192.5
Interpretive Facilities	\$288	\$4,225	\$2,929	\$1,933	\$2,083
Ocean Literacy and Constituent Building	\$670.6	\$888.1	\$1,150.8	\$2,937.3	\$1,132.8
Water Quality Issues					
Beach Closures and Microbial Contamination	\$1,256	\$668.5	\$1,020	\$660	\$684
Cruise Ship Discharges	\$183.5	\$103	\$64.5	\$51.5	\$51.5
Water Quality Protection Program Implementation	\$1,769	\$1,551	\$1,577	\$1,509	\$1,532
Wildlife Disturbance Action Plans					

Action Plan	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Marine Mammals, Seabirds, and Turtles	\$1,438.5	\$738.5	\$609.5	\$581.5	\$617.5
Motorized Personal Watercraft	\$330	\$215	\$159.5	\$159.5	\$152
Tidepool Protection	\$533	\$391	\$416	\$395	\$486.5
Cross Cutting Action Plans					
Administration and Operations	\$288	\$276	\$264	\$264	\$264
Community Outreach	\$144	\$180	\$180	\$180	\$216
Ecosystem and Monitoring	\$381	\$525	\$567	\$531	\$471
Maritime Heritage	\$237	\$237	\$246	\$270	\$270
Northern Management Area Transition	\$50	\$50	\$50	\$50	\$50
Total Estimated Annual Cost	\$11,791.9	\$15,060.4	\$13,645.2	\$14,033.8	\$11,270.3

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.

Prioritized Action Plan Implementation

The action plans and strategies in this management plan comprise a body of work, if fully implemented, requires resources well beyond what is currently available to the MBNMS and NMSP. MBNMS staff worked with the Sanctuary Advisory Council and NMSP leadership to identify which action plans should be implemented in which order or with the most initial emphasis. Implementation of some action plans may also be dependent on a variety of funding scenarios such as grant applications, funding priorities of outside parties, or reliance on partner participation. The implementation of various action plans in the management plan may therefore occur at different stages based on urgency, benefit to Sanctuary resources, and resource availability. Table EX-2 outlines the potential funding scenarios, identifies the level of partner participation and indicates the sources of funding (internal vs. external).

Legend			
Column A	Column B, C, D	Column E	Column F
Strategy Status: <p>● – Existing w/o significant modification ◐ – Existing w/ significant modification ○ – New (since '05) or future (not yet implemented)</p>	Implementation* (w/ NMSP Funding): <p>H – High M – Medium L – Low</p> <p>* Implementation ranking considers the priority of each strategy as well as the percentage of activities that could be initiated, maintained, and/or completed under differing funding scenarios.</p>	Necessary Partnership Coordination: <p>● – Not possible w/o partners ◐ – Significant reliance on partners ○ – Little reliance on partners</p>	Primary Funding Sources: <p>● – External (e.g. Grants) ◐ – Internal and External ○ – Internal</p>

Table EX 2.0 Summary of Action Plan Implementation Scenarios

Action Plans	A Strategy Status:	B Implementation Level Funding: Scenario 1	C 10% per year Increase: Scenario 2	D 20% per year Increase: Scenario 3	E Partnership Coordination	F Internal / External Funding Sources
Coastal Development Action Plans						
Coastal Armoring	◐	L	L	M	●	○
Desalination	◐	M	M	H	●	○
Harbors and Dredge Disposal	◐	L	L	M	●	○
Submerged Cables	◐	L	L	L	○	○
Ecosystem Protection Action Plans						
Big Sur Coastal Ecosystem	○	L	L	M	●	◐
Bottom Trawling Effects on Benthic Habitats	◐	M	M	M	●	◐
Davidson Seamount	◐	L	L	M	◐	◐
Emerging Issues	○	L	L	L	○	○
Introduced Species	◐	L	L	M	◐	○
Sanctuary Integrated Monitoring Network (SIMoN)	◐	H	H	H	◐	◐
Special Marine Protected Areas	○	M	H	H	●	○
Operations and Administration Action Plans						
Operations and Administration	◐	M	M	H	○	○
Performance Evaluation	○	H	H	H	○	○
Partnerships and Opportunities Action Plans						
Fishing Related Education and Research	◐	M	M	M	◐	●
Interpretive Facilities	◐	H	H	H	●	●
Ocean Literacy and Constituent Building	●	M	M	M	●	◐
Water Quality Action Plans						
Beach Closures and Microbial Contamination	○	H	H	H	●	◐
Cruise Ship Discharges	◐	M	M	M	◐	○
Water Quality Protection Program Implementation	●	H	H	H	●	◐
Wildlife Disturbance Action Plans						
Marine Mammal, Seabird, and Turtle Disturbance	○	L	L	M	◐	○
Motorized Personal Watercraft	◐	M	M	M	◐	○
Tidepool Protection	○	L	L	M	◐	○
Cross-Cutting Action Plans						
Administration and Operations	◐	M	M	H	○	○
Community Outreach	○	L	L	M	◐	○
Ecosystem Monitoring	◐	M	M	H	◐	◐
Maritime Heritage	○	L	L	M	●	◐
Northern Management Area Transition Plan	◐	M	M	H	◐	◐